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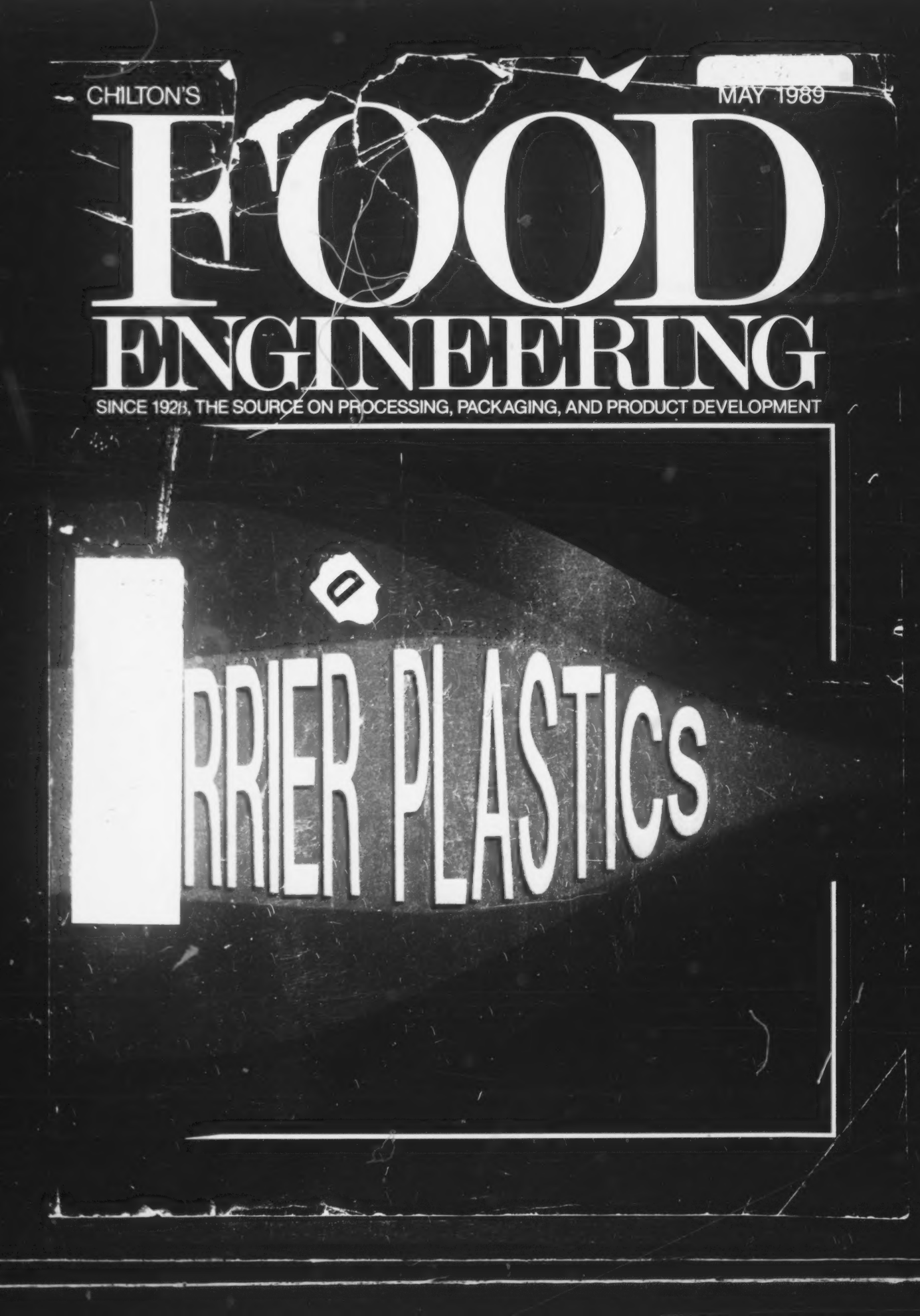
MAY 1989

FOOD ENGINEERING

SINCE 1928, THE SOURCE ON PROCESSING, PACKAGING, AND PRODUCT DEVELOPMENT



FOOD ENGINEERING

COVER STORY

Because of improvements in barrier polymers, many plastic packages now rival the excellent shelf life and barrier properties that glass and metal have always provided.

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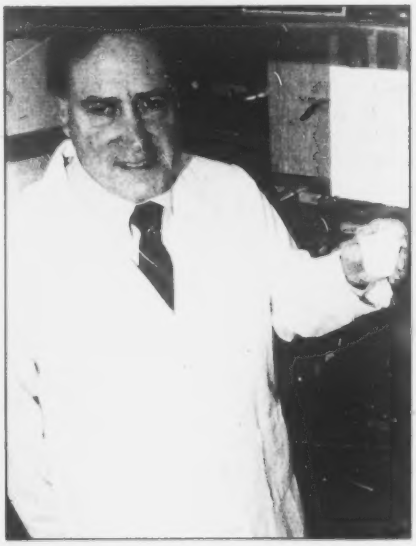

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Special Emphasis

LIDDING & ADHESIVES

In addition to manufacturing concerns, regulatory issues of food safety and package integrity are becoming increasingly important.

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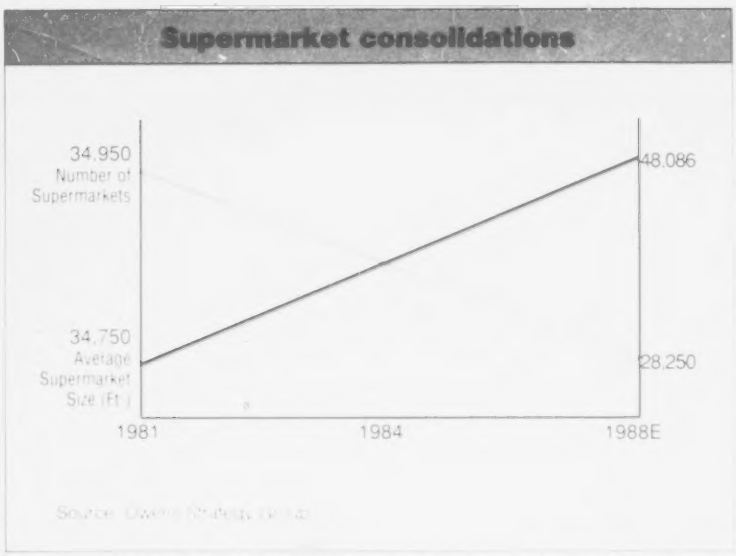
Research identifies strategies for regaining leverage from retailers



The amount of food stores has dropped as size has grown. This consolidation of the market has presented processors with new challenges.

Industry trends have shifted the balance of power in distributing and marketing food products from manufacturers to retailers, but manufacturers can employ six strategies to regain some of that "channel leverage," according to a study by the Chicago management-consulting firm Owens Strategy Group, Inc.

Manufacturers historically held channel leverage due partly to the tremendous advertising and promotional budgets they deployed to support retailers but "this has all changed within the past decade," says Peter J. Cochrane of Owens Strategy Group. Retailers have awakened to their new power and "manufacturers have been seriously impaired as a result," he added. "Unless food manufacturers are able to regain channel leverage, they may become chronically unprofitable."

Industry trends

Reasons for growing retailer leverage, said Cochrane:

- *Low-priced alternatives* such as generics and private labels have weakened traditional brands. "Although the penetration of house brands has leveled off, the damage has already been done – both consumers and retailers have a heightened sensitivity to price."
- *Consolidation*, resulting in fewer, more powerful retailers in most geographic markets. Owens' research verifies that 42 of the 53 current Selling Areas Marketing, Inc. (SAMI) markets are dominated by three or fewer retail chains. "It is now almost impossible for a manufacturer to have significant share if its brand is not offered by the major retailers," Cochrane points out.
- *Advances in information technology* incorporating scanners to track sales and profitability of individual brands – as well as the potential value of various retailer practices – with remarkable speed and accuracy. "This information provides retailers the confidence to discriminate against underperforming brands," says Cochrane.
- *New retail formats* offering greater variety of foods and services (such as expanded deli departments with more refrigerated fresh foods and in-store food service) in response to changing demographic patterns. These have become important components of retail sales and profitability, reducing the retailer's reliance on suppliers of traditional packaged products.

Implications for processors

These trends alter the relationship between manufacturer and retailer, Cochrane continues.

In many markets, retailers now seek to dictate business terms such as product assortment, pricing, invoice terms and promotional support. Some retailers are flexing their new muscle by demanding nationwide uniform pricing, by charging "slotting allowances" to get a new product on their shelves, by requiring more local advertising, by pressuring manufacturers to guarantee their sales by buying back unsold inventory. Some brokers and distributors are "diverting" lower-cost merchandise intended for regional promotion to markets where it can be sold at higher prices. (An entire new business has grown-up around the practice of diverting, with "arbitrageurs" handling diversions and profiting from the price spread, said Cochrane.)

Retailers are more discriminating in product selection, particularly size and flavor varieties, and try to boost margins by reducing the costs of holding, handling and promoting inventory. Chains are thus pressuring manufacturers to improve credit terms, accelerate distribution and bear more promotional costs. "The number and value of reduced-price deals has escalated to the point where manufacturers are losing control over pricing their own brands," says Cochrane. "For some manufacturers, the battle has become one for survival, not just one of differentiation."

Regaining leverage

Cochrane's research identifies six basic strategies applied by "progressive companies" to regain channel leverage:

1.) *Increase productivity and reduce costs.* Generics and private labels highlight the most common weakness of branded-food companies – high costs. It has been demonstrated, however, that costs can be reduced while quality is maintained.

2.) *Build strong brands.* A strong consumer franchise derived from one or more strong brands is an important consideration for retailers. This means

continued investment in advertising and promotion by manufacturers even though short-term margins may suffer. If a manufacturer enjoys a cost advantage relative to competitors, strong brands can be built while profits remain healthy.

3.) *Concentrate resources on winners.* Some products may remain uncompetitive even after efforts to reduce costs and build demand. Eventual decisions must be made whether these products should continue to receive support.

4.) *Dominate generics and private brands.* The most successful food companies have demonstrated that branded and non-branded products can successfully coexist. By attacking both ends of the price-brand spectrum, says Cochrane, retailers achieve their desired segmentation while competitors are kept under control.

5.) *Explore alternative product formats.* As retailers expand their own service formats, manufacturers should follow with appropriate product variations and service alternatives. One example: new fresh-food entrees for deli departments. "Competitors who remain locked into only one format are not only foregoing growth opportunities but are risking attack from other competitors as well," Cochrane points out.

6.) *Market to the trade.* Manufacturers must market their products to retailers with the same zeal they market to consumers, says Cochrane. Examples: showing retailers how their products can boost DPP (direct product profit); front-end merchandising aids to help retailers gain extra impulse sales.

"With no coherent strategy for responding to retailer leverage, food manufacturers will gradually lose control over marketing and distribution of their products. Regaining channel leverage should be a high priority," Cochrane concludes.

Artificial Intelligence becomes an item on foodservice menus

The pressure to perform better is being put on processors not only large supermarkets. All channels are getting into the act. For example, "Expert" Artificial Intelligence (AI) programs being applied to computerized process control in food plants may soon be applied by food-service operators to help them control food costs, according to Washington State Univ. (Pullman, WA). An expert AI program called the *First Food Costs Expert*, developed by Dr. Lothar A. Kreck of the university, will be marketed to business software companies.

Expert AI programs simulate the thought processes of an expert in a given area. Kreck wrote the program "because food cost control is not always clearly understood by some operators." Food costs can equal half of sales income, he added, so a small decrease in food costs can translate directly into profit. To use the system, the operator first enters his ideal (or theoretical) food costs, actual food costs and budgeted food costs as percentages of sales income. If these are not equal, there is a problem, and the system guides the operator through questions based on Kreck's "Golden Rules" of cost control grouped by functions such as purchasing, preparation and storage. Questions answered "no" represent rules the operator is not following and can be printed out as a plan of action.

Kreck taught classes in food cost-control for 25 years.

Federal agencies join efforts to rebut alarm raised regarding Alar

"The federal government believes that it is safe for Americans to eat apples, and the responsible federal agencies are working together to reassure the public of this fact," said FDA, EPA and USDA officials in a joint statement March 16 rebutting a widely-publicized report by the National Resources Defense Council (NRDC) that cancer risk from the preservative *Alar* is 100 times greater than EPA estimates, and that "children face a massive public health problem from pesticide residues in food."

The rebuttal statement was released by FDA Commissioner Dr. Frank E. Young, EPA Acting Deputy Administrator Dr. John Moore, and USDA Assistant Secretary John Bode. "EPA and others have pointed to lack of scientific validity in the suggestion by the NRDC that the risk (from Alar) is much greater than has been stated by EPA," they said.

Key points in the rebuttal statement:

- NRDC data claiming that cancer risks from Alar are 100 times greater than EPA estimates were rejected in 1985 by an independent scientific advisory board created by Congress.
- Alar has been used by apple growers for decades, and has been subjected to "many studies on possible harmful side effects."
- Preliminary results of an ongoing study show that a breakdown product of Alar caused certain kinds of tumors in mice. EPA is therefore developing a process to phase out Alar if the final data – which will be independently reviewed – demonstrates a need for cancellation, which could then occur by July 1990. "EPA believes the potential risk from Alar is not of sufficient certainty and magnitude to require immediate suspension of the use of this chemical," said the government officials. "Both FDA and EPA believe that Alar use over this interim period is safe and does not pose a health risk to the American public."
- FDA's food-pesticide monitoring program has found either no pesticide residues or residues far below EPA tolerance levels (*FE* March '89).
- Available data show "overwhelmingly" that apples carry very small amounts of Alar.
- Alar use has decreased "dramatically" over the past several years, and an estimated 95 percent of the apple crop was not Alar-treated in 1988.

FDA, EPA and USDA believe apple consumption poses no imminent hazard to children "despite claims to the contrary," the officials concluded. "Therefore, the federal government encourages school systems and others responsible for the diets of children to continue to serve apples and other nutritious fruit to American children."

Circle 12 on Inquiry Card→

New products account for 15 percent of specialty food sales

New specialty foods—potential for success

Category	Potential for new item success			Need for more new items	
	Below average	Average	Above average	Want more new items	Too many now
Appetizers/hors d oeuvres	9%	36%	55%	31%	2%
Wine	12	33	55	5	3
Candy (chocolates)	10	40	50	19	19
Candy (other)	14	42	43	15	12
Coffee/tea	10	44	46	9	10
Snacks (nuts/chips, etc.)	13	41	46	22	10
Pasta	10	46	44	13	9
Cheese	7	50	43	16	2
Cookies/cakes	9	48	43	17	11
Beverages, non-alcoholic	9	51	40	12	14
Sauces/bases/mixes	11	46	38	16	6
Oils/vinegars/salad dressings	9	55	36	6	25
Grains/rice/cereals	23	42	35	11	2
Seasonings/spices/flavorings	12	54	34	5	8
Condiments/mustards	20	51	29	7	29
Soups/stocks	17	60	23	9	2
Jams/jellies/preserves	20	57	23	4	39
Syrups/honey/dessert toppings	31	54	15	4	13

Source: National Association for the Specialty Food Trade Inc.

A survey of 8,000 specialty food retailers and 1,200 manufacturers, distributors and importers examined types of new products desired by specialty food retailers and their chances for success.

The importance of new foods in the specialty food trade is increasing even though only 46 percent of these new products succeed. This is among the findings of a survey conducted by the National Association for the Specialty Food Trade, Inc. (NASFT). Eight thousand specialty food retailers and 1,200 manufacturers, distributors and importers were questioned for the survey.

New items account for 15 percent of specialty food sales, and retailers want more new items in the appetizer/hors d'oeuvre, snack, confectionery/chocolate and cookie/cake categories. Fifty-two percent of the retailers questioned stated that new items are "much more important" today than five years ago. And 22 percent said that they were "somewhat more important" than five years ago. Only 3 percent felt that new product had become "less important."

The survey also found that both retailers and manufacturers agreed that health/diet and convenience packaging will be the two primary factors influencing new item success in the 1990s. Other factors – such as being shelf stable, microwaveable and single serving – will also contribute to a product's success.

A host of new products available to specialty food retailers was seen at the 14th Winter International Fancy Food and Confection Show, held March 19 to 21, 1989, at the Moscone Center in San Francisco. The exhibit space covered 129,000 square feet, a six percent increase over the show held in San Francisco in 1988.

Convenient and/or healthy foods

Appealing to the desire for convenience packaging, Reese Finer Foods, Bloomfield, NJ, introduced *Microwave Nach-Os*. This combination of tortilla chips and cheese is prepared in the microwave oven in 30 seconds. Also new from Reese, was *El Rio Fajita Seasoning Mix* to simplify the preparation of fajitas. Skirt steak, chicken or shrimp can be used with the seasoning mix.

New "healthy" products were especially popular at the show. *Gift of Bran* is a new 100 percent rice bran oil available from Select Origins Inc., Westhampton Beach, NY. The label states, "This unique oil may help reduce cholesterol as part of a low fat and low cholesterol diet." Rice bran oil has been a popular cooking oil in Japan for nearly fifty years, but is new to the U.S.

Another new bran product – *Oat Bran Pasta* – hailed from Edward & Sons Trading Co., Inc., Union, NJ. This pasta contains organic stone ground whole wheat and brown rice, and features 25 percent oat bran. Fettuccini and rotelli varieties are offered.

Also in the "healthy" area were *Soy Nuts* which have a soft crunchy texture. Recommended as a topper for ice cream, salads or alone as a snack, these nuts are available from Smoky Valley Grains, Marquette, KS.

Westbrae Natural Malteds was introduced as having half the fat of a shake while being "thicker and richer than ever." Made from water, soybeans, brown rice syrup and other ingredients, this drink contains no gums or thickeners. The drinks are available from Westbrae Natural Foods, located in Emeryville, CA.

A new product with reduced calories was introduced by the Sandoz Nutrition Corporation, Minneapolis, MN – *Featherweight Sweet Pretenders*

Ready-to-serve puddings under the Featherweight brand were introduced in three varieties – butterscotch, chocolate and vanilla.

A canned pudding offered in butterscotch, chocolate, and vanilla varieties, this product is fructose-sweetened and contains 100 calories per serving.

Sauces and condiments

An abundance of new sauces and condiments were exhibited. Cook's Classics, Ltd., Palo Alto, CA, added four new dressings and sauces to its line. *Garlic Gusto* is oil-free with only eight calories per tablespoon. *Señora Cook's Mild Mexican* blends the zesty flavors of Mexico—tomatoes, cumin, lime juice and cilantro—but leaves out the heat. *Oriental Ginger* is a blend of sesame oil, ginger, mustard and spices. And *Peach Walnut* is a creamy sauce with a touch of cinnamon.

Maison Robert Dressing au Champagne was new from Maison Robert, Santa Barbara, CA. In addition to the original flavor, natural tomato, red raspberry and cucumber pistachio are offered. Judyth's Mountain Specialty Foods, San Jose, CA, introduced a tomato based pasta sauce with pesto seasoning.

On the more exotic side were *Thai Seafood Marinade* and *Tandoori Indian Grilling Paste* from Cinnabar's Specialty Food, Inc., Prescott, AZ. The Thai marinade is a blend of tamarind, Asian citrus, chiles and soy.

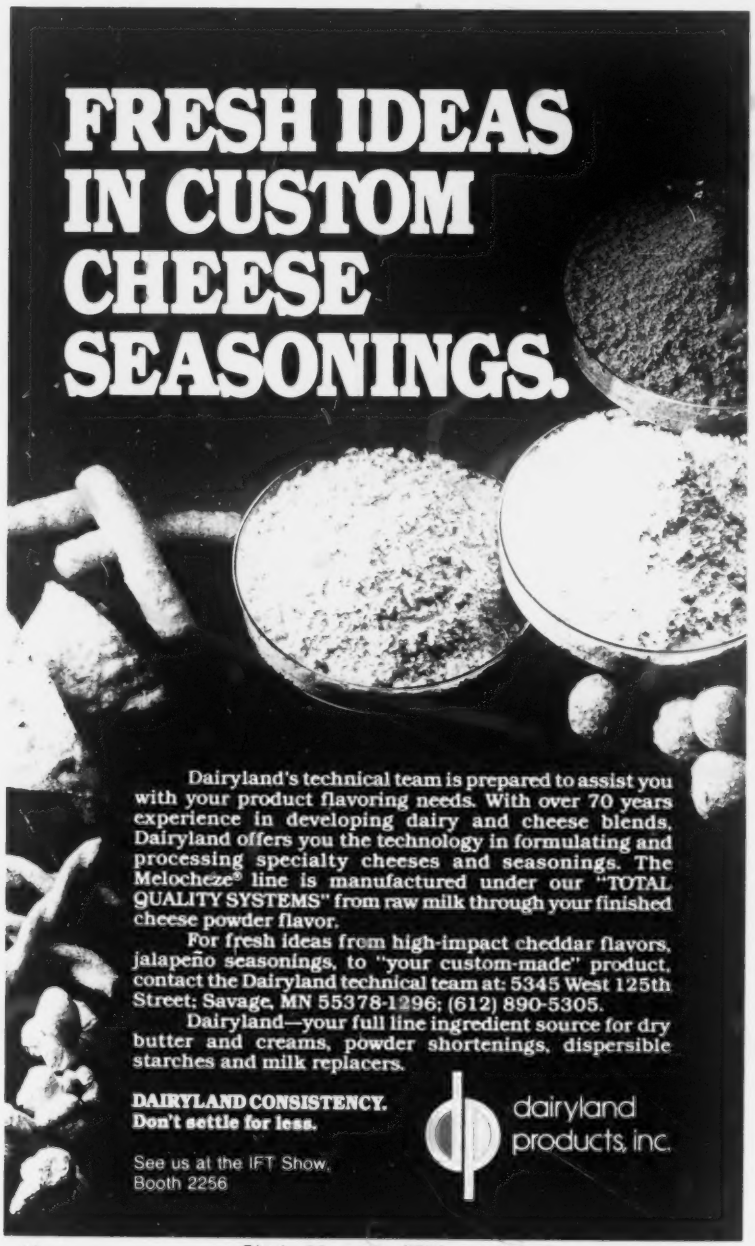
A line of new Dressing au Champagne from Maison Robert offers original, red raspberry, cucumber pistachio and natural tomato varieties.

A new imported sauce, *Lingham's Chilly Sauce*, comes from Malaysia. Slightly sweet in taste, this sauce is made from sun-ripened red chiles, vinegar, sugar and salt. It is available from Liberty Imports, Inc., Carlstadt, NJ. Also from Liberty Imports are *Mabel's Caribbean Hot Sauce with Papayas* and an even hotter *Mabel's Fiery Pepper Sauce*.

In the condiment area, Liberty Imports introduced *Baxters Lemon Curd*. It is made with eggs, butter and concentrated lemon juice. Another new condiment was *Upside Down Cajun Pickles*. Since spices settle to the bottom of a jar, these jars are kept upside down so the pickles at the top always have the fullest flavor, according to the manufacturer, Metairie, LA-based Upside-Down Cajun Brands, Inc.

Confections and desserts

Five new flavors were added to the gourmet *Jelly Belly* jelly bean line: buttered popcorn, orange sherbet, tutti-fruitti, lemon meringue, and totally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Circle 23 or see FEM, p. 125

mint. From Herman Goelitz, Inc., Fairfield, CA, this line now has 40 flavors.

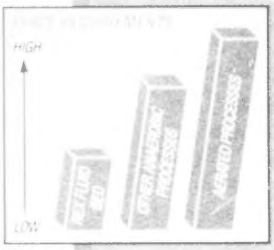
San Francisco-based Ghirardelli Chocolate Company introduced *The Premier Collection of Bar Chocolates*. The new collection consists of mint chocolate, milk chocolate, dark chocolate, milk chocolate with macadamia nuts, and milk chocolate with almonds varieties.

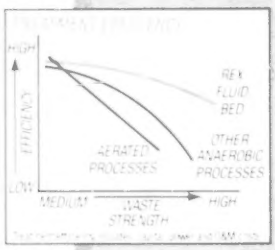
In the dessert area, a new line of *Gourmet Butters and Spreads* was announced by Moon Shine Trading Co., Winters, CA. The spreads combine nut butters with chocolate truffle sauces and are offered in white chocolate cashew creme, almond dream, milk chocolate almond crunch and semi-sweet chocolate crunch flavors. They can be spread on croissants, used to make truffles or in other applications.

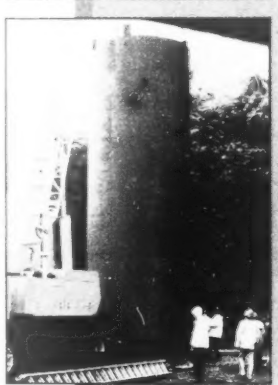
New bubble gum offers unique appeal

Pool Ball Bubble Gum, a take-off of the well-recognized game, is a new product from Amurol Products Company, Naperville, IL. Pool Ball's triangular graphic display box instantly draws consumer attention. Each colorful package resembles a triangular pool rack containing six giant bubble gum balls. The product has a suggested retail price of 69¢.

Wishful thinking won't solve your wastewater pretreatment requirements. The Rex Fluid Bed will!







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Video game success and cereal combined

Ralston Purina Company, St. Louis, MO, announced the introduction of *Nintendo Cereal System* brand cereal. Under a licensing arrangement, the new cereal was created to leverage the popularity of Nintendo, which controls 75 percent of the $2.3 billion video game industry. The company's two fastest selling video game adventures are "Super Mario Brothers" and the "Legend of Zelda."

Nintendo Cereal System features two distinct cereals – packaged in separate bags – in each box. Both cereals are made from four grains and fortified with nine essential vitamins and minerals, but one bag is flavored with blueberry, strawberry and raspberry and the second bag is orange, cherry and lemon flavored.

Each bag is linked with one of the adventure games. There are five cereal pieces representing characters from the two games in each package.

New product ideas utilize...

Almonds

Expanded use of almonds as an ingredient can result in innovative new foods with added appeal.

California produces 67 percent of the average world almond crop, making almonds California's number one food export and the sixth largest U.S. food export. The last growing season (1987-88) was the best export year for California almonds, exceeding $480 million.

The exported almonds are used, in part, as an ingredient in new products. In Japan, for example, over 100 new almond items were introduced in 1987 alone. Some of the new products are: instant almond cocoa, assorted almond rice crackers, ice cream candy bars, almond fruit pizzas and slivered almond and shoestring potato snacks.

Two of the most popular new Japanese products are *Calmond*, a mixture of dried small sardines and slivered almonds, and *Almond Peptide*, a Japanese headache remedy. The need for calcium among elementary and junior high school students prompted the development of Calmond (the sardines provide calcium). Milk products are not as common in Japan as in the U.S. Almond Peptide is a protein extract from almond kernels.

In Europe, the use of almond butter as an ingredient is much more widespread than in the U.S. In fact, several European chocolate manufacturers have introduced bars with almond butter.

While U.S. per capita almond consumption is .71 pounds—the highest of all tree nuts, the California almond industry is placing more emphasis on increasing U.S. consumption. This is especially important in light of changing world economic factors.

Average volume of California almond exports

Year ending July 1	Pounds (in millions)	$ Value (est. in millions)
1980-81	187.295	350
1981-82	207.894	228.7
1982-83	177.980	231.4
1983-84	171.699	232
1984-85	266.762	312
1985-86	332.186	415
1986-87	174.011	420
1987-88	343.295	480

Source: Blue Diamond Growers

California produces 67 percent of the average world almond crop and many of these almonds are being used as ingredients in new products. For example, in Japan Calmond, a mixture of dried sardines and slivered almonds, was introduced in 1987.

The level of exports is partially dependent upon the strength of the dollar in world markets and, therefore, not as dependable as the volume of almonds sold in the U.S. Part of the effort to increase almond consumption in the U.S. involves offering an increased variety of almond ingredients and formulation suggestions for using these ingredients.

R&D personnel at Blue Diamond Growers have been actively developing new formulation ideas for using almonds and almond products as ingredients. These new products utilize a variety of almond ingredients.

Almond paste, either lightly flavored or unflavored, can add sweetness and texture to foods. Basic almond paste consists of finely ground almonds, sugar and water. Its consumption in the U.S. has climbed 15 to 20 percent annually over the last five years. Some of the foods that can incorporate almond paste are:

- *Soft-Centered Almondola Bars*: Almond paste (unflavored or regular, blanched or natural, fruit blended or all-almond) can be used as a center for granola bars. These bars could be dipped in chocolate, if desired.
- *"Adults Only" Cookies*: An upscale

chocolate mint chunk cookie incorporates almond paste in the dough.

• *Almond Flan*: A traditional Mexican custard dessert with an unusual twist of a crispy caramel crust (which incorporates almond paste) on the top and the bottom of the pudding is baked in individual serving dishes.

Almond paste powder was developed for use in foods where a dry form of almond paste is desired. The amount of almond flavor in this product can be varied. Two possible new foods using almond paste powder are:

• *Almond Tunnel Cake*: A ring of filling made from almond paste powder forms the center of a chocolate tunnel cake.

• *Almond Paste Dessert Mixes*: Almond paste and/or marzipan in powdered form can be used in dry bakery mixes for home use.

Almond butter can be used as an ingredient in addition to its use as a retail product. Several possibilities are:

• *Rocky Road Sundae*: A classic combination of chopped almonds and marshmallows in ice cream can have the added feature of a swirl of chocolate almond butter.

• *Amaretto Almond Ice Cream*: Amaretto almond butter in vanilla ice cream would have adult appeal.

Almond powder can be blanched or unblanched or, for added flavor, roasted. Almond powder can also be partially defatted for those concerned about fat content. Numerous products can be developed from this powder.

• *Almond Milk Concentrate*: A mixture of finely ground blanched almonds, water, sugar, stabilizer and flavorings results in this non-dairy drink which looks like milk. It can, in turn, be used as an ingredient to make frozen novelties.

• *Cream of Almond Soup*: Roasted blanched ground almonds, partially defatted roasted almond powder or almond milk concentrate serve as the basic ingredients in rich, creamy, non-dairy soup.

Different cuts of almonds can be used to enhance the value-added appeal of foods. Crinkle cut almonds can be used in a potato or stuffing product. Or, a salad bar topping could consist of cheese croutons, toasted blanched slivered almonds, sesame sticks and potato sticks.

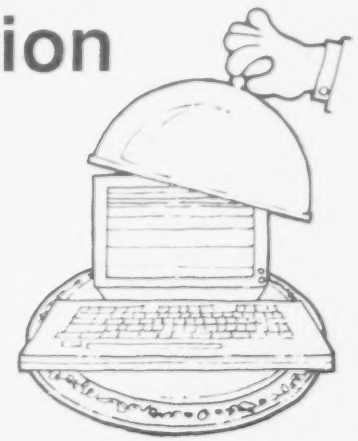
Another ingredient from almonds is roasted almond oil which is becoming popular as a natural flavor. It can be used in products such as soft dairy desserts.

As competition for shelf space for new products remains stiff, using almonds for added appeal in new product development could help improve that product's chances of success.

For more information on using almonds in new products, contact Blue Diamond Growers, 1802 C Street, P.O. Box 1768, Sacramento, CA 95812. Or, circle **253** on the reader service card.

Gourmet Information

Applied Research on Food Technology



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INGREDIENTS NEEDED FOR HEALTHY FOODS

The future will bring healthier foods, improved preservation methods and biotechnological ingredients, according to FE's 1989 Ingredients Buyers Survey.

Future food research will focus on the formulation of "healthy foods," improved preservation methods and the development of new ingredients through biotechnology. This is the prediction of *Food Engineering's* Executive Advisory Panel.

"As digestive pathways become more known in pure research, and long-range medical research produces results, we are going to see harder facts," wrote one participant. "Thus, future research in solid factual nutrition will come to be much less wooly theories."

When asked what direction future food research will take, a number of panel members specifically mentioned the development of foods with less saturated fats or increased dietary fiber. In addition, other panelists made similar predictions stating that research aimed at producing healthy foods would occur. One person saw "increased emphasis on new products or line extensions with reduced or eliminated saturated fats and cholesterol, increased use of natural ingredients, and fortification with vitamins and minerals," as part of future research.

Whatever happens, natural ingredients will be part of it. Using natural ingredients was mentioned most often as having a major influence on ingredient and product development decisions (see chart). There was a three-way tie for the second most often mentioned major influence: saturation level of fats, using pesticide-free ingredients and ingredients produced under HACCP. Other categories listed in the survey as having a

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Senior Editor

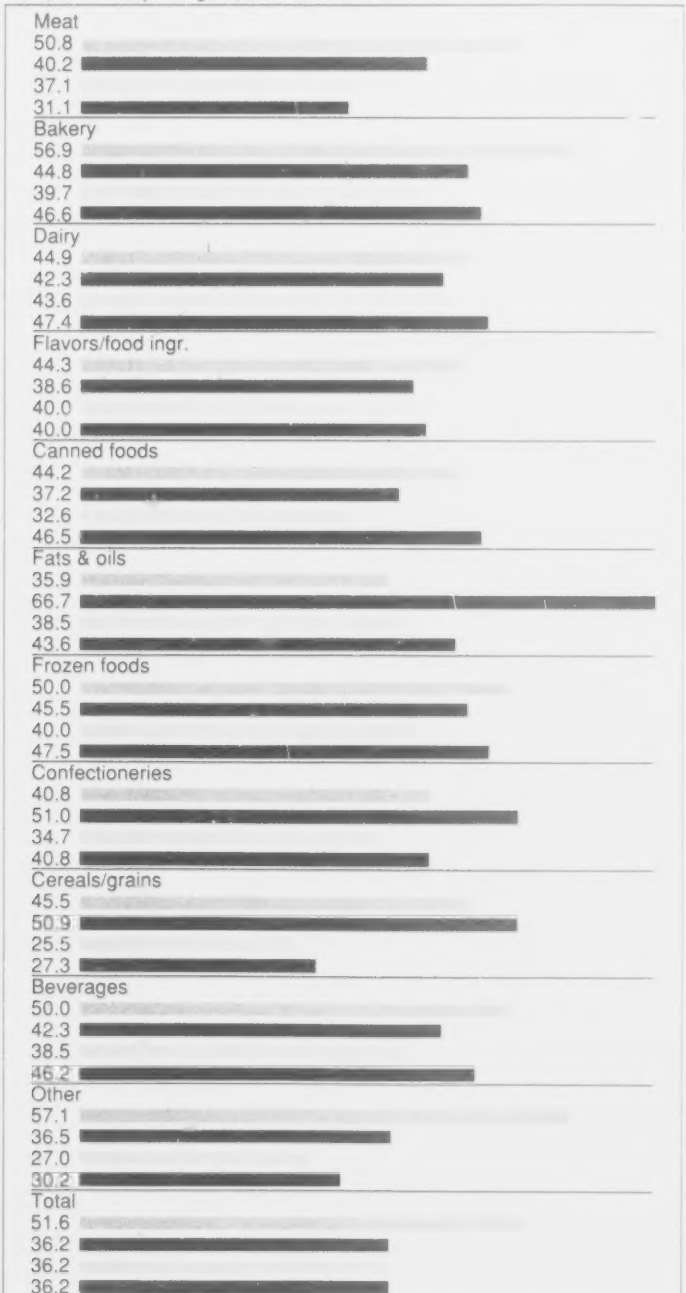
Activity level of new product research
(Percent of panelists who indicated pace is higher than previous year.)

Source: Food Engineering's Ingredient Survey 1989

Influence on ingredient and product development decisions

(Percent of panelists who indicated these considerations as a major factor in influencing their decisions.)

- Using natural Ingredients
- Saturation levels of fats
- Using pesticide-free Ingredients
- Ingredients produced under HACCP (or similiarly stringent) QC conditions



Source: Food Engineering's Ingredient Survey 1989

possible influence on ingredient and product development decisions were: lessening/eliminating preservatives, vitamin fortification, mineral fortification, low- and reduced-calorie foods, reducing sodium content, reducing cholesterol content and adding fiber to foods.

Improved convenience foods needed

Future foods offering convenience were certainly part of what the panel said to watch out for; improved microwaveable products were an element of the mix, as were specific microwaveable products such as shelf-stable foods and refrigerated products in controlled atmosphere packaging. "Fresh, refrigerated foods demanded by consumers will generate new technologies," predicted one panelist.

Our panelists were also given the opportunity to comment on ingredients or ingredient systems that are needed but not yet available. Natural antioxidants or preservatives were mentioned most often. One participant asked for "natural antioxidants and preservatives that safely extend shelf life and prevent 'warmed-over' flavors."

A need was expressed for reduced cholesterol in animal and dairy products, and for a hydrogenated fat replacement (see *FE*, Feb. '89, p.83). Also to aid in formulating healthy foods, some panelists requested a wider array of non-nutritive sweeteners, good-tasting salt replacers and/or low calorie fats.

We specifically asked our panelists where their company saw problems of price, supply or current technology in ingredients. Concern with current technology was expressed most often for antioxidants/preservatives and colors, with 26.4 percent of our panelists mentioning these categories (see chart). Concern about natural flavor technology came next with 26 percent, followed by artificial flavors at 18.7 percent, and low calorie sweeteners at 16.7 percent.

Current technology was not the only concern buyers had about natural flavors. Price was also considered a problem by 29.7 percent of the panelists. The other top four categories where price was seen as a problem were: sweeteners (corn) at 24.4 percent, cheese at 23.6 percent, fats and oils at 22.8 percent and sweeteners (sucrose) at 21.5 percent. There were no major concerns about availability of ingredients though. Natural flavors and fiber sources were each noted by 15.9 percent of the panelists. Other categories were cited even less frequently.

When selecting a supplier, 89 percent of our panelists consider the quality of the in-

gredients a critical factor. Next most important is the availability of ingredients, with 78.5 percent considering this critical; following closely is assurance of quality safety at 75.6 percent. Suppliers' after-sales service is considered critical by 41.5 percent of our panelists; followed by price at 26.0 percent and supplier's R&D capability at 24.4 percent.

Innovation or line extension?

New product activity continues to increase, but not by the same rate as last year. In our 1988 survey, 50.1 percent of the respondents said that new product activity increased in their companies over the previous year. This year (1989) we separated new product activity into innovative new products and line extensions. In the area of research resulting in innovative new products, 45.5 percent felt that there was increased activity over the previous year in their companies; for line extensions, 44.7 percent said activity was increasing.

Not everyone within a company sees the innovative and line extensions breakout the same. While management, R&D, marketing sales and packaging people said that innovative new product research was ahead of line extension activity, the engineers in our survey disagreed (see chart). Only 35.2 percent of the engineers said that innovative new product activity has increased versus 53.5 percent who felt that only line extension activity increased.

Smaller companies spend a larger portion of their R&D efforts on innovative new products as compared to line extensions. For companies with less than 100 employees, 22.7 percent of the panelists indicated that line extension activity had increased over the previous year and 44.6 percent said that innovative new product activity had increased. In other words, within small companies innovative research increased twice as much as line extension work.

This was not the case in larger companies. Panelists from manufacturers with more than 500 employees reported a 47.8 percent increase in line extension activity compared to a 46.4 percent increase in innovative new product research. Or, a similar increase was seen in both innovative and line extension activity.

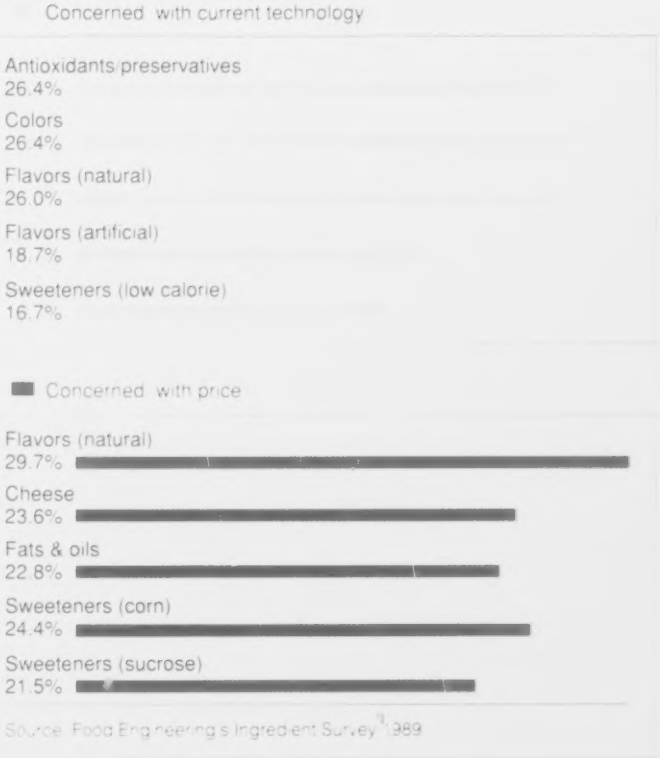
Mergers and R&D

A new series of questions added to our survey this year concerned the effect of mergers on food research. Feelings were strong in this area. For the most part, panelists indicated that mergers resulted in decreased new product activity and basic research.

"The debt burden generally causes a force reduction localized in research and development where the impact is generally not felt for years. Additionally, debt service causes a company to look for savings which generally impact on product quality," wrote one panelist. A number of other panelists said that the long-term effect would be negative. One person suggested that, "while some mergers are necessary (e.g., poorly managed companies), most appear to be ego trips for top management."

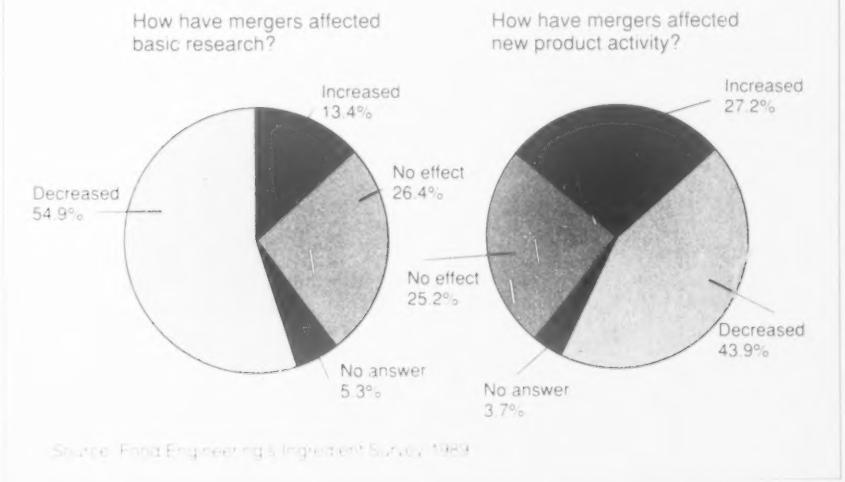
Lessening of competition was mentioned several times as one result of mergers. Panelists from smaller companies pointed out that increased pressures on the surviving companies result. "With the practice of retailers charging stocking allowances, it makes it very difficult for the small food manufacturer to compete with the big boys," said one panelist. A few panelists did say that recent mergers would make their companies more competitive.

Dissatisfaction with ingredients' price/technology level



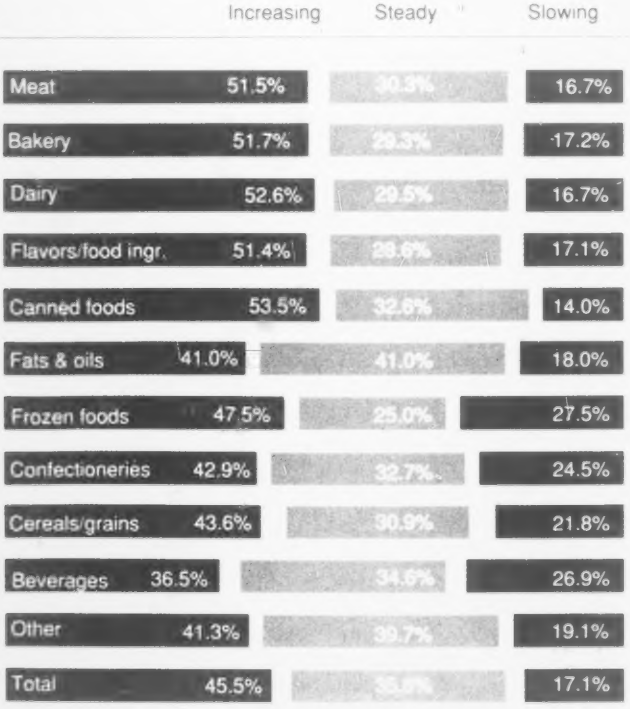
INGREDIENT BUYERS SURVEY

Mergers and food research



Source: Food Engineering's Ingredient Survey 1989

Pace of innovative new product activity by industry (as compared to previous year)



Source: Food Engineering's Ingredient Survey 1989

Several people suggested that even rumors of mergers can result in demoralization of workers – reducing productivity and quality. The majority of our panelists – 73.6 percent – said that the number of jobs are reduced when mergers occur. Although, it was pointed out that usually it is redundant positions that are eliminated and duplicate projects that are dropped. On the other hand, a number of respondents said that good people were lost due to mergers in their companies and this results in loss of company loyalty.

One panelist with particularly strong feelings stated, "I've survived a 'downsizing' just prior to being acquired by a larger company, however, many of my co-workers did not survive. That day – when over 200 jobs were 'eliminated' – was devastating. The majority of the positions eliminated were occupied by the most senior [in years] and most highly paid. They were given a package, but how does this make up for 20-plus years of dedicated, loyal service, especially when the individuals' dedicated and hard work put the company in a good financial profile making it an attractive acquisition?"

"I suppose what bothers me the most is what do I tell my children [teenagers] about how to be a conscientious, loyal, hard-working employee for some employer who might cash in on them as a result of their dedication? We've got a problem, if this doesn't stop soon our industrial/manufacturing sector is going to be third rate due to a lack of caring or work ethic," he added.